By this amendment, new claims 97-113 are added. So, claims 1-2, 4-8, 10-14, 17-18, 20-36, 47-53, 69-87 and 89-113 will be pending after entry of this amendment.

Support for new claims 97-104 may be found on page 20, lines 17-18, on page 40, lines 24-25, and on page 41, lines 3-6.

Support for new claims 105-113 may be found throughout the application. For example, new claim 105 is supported at page 9, lines 15-28, at page 37, lines 11-29, and from page 78, line 27 to page 81, line 14. New claims 106 and 107 are supported, for example, at page 10, lines 4-5. New claim 108 is supported, for example, at page 41, line 6. Support for new claim 109 may, for example, be found at page 80, line 31. Claims 110 and 111 are supported, for example, at page 30, lines 5-6. Support for claim 112, for example, may be found at page 28, lines 20-22. Claim 113 is supported, for example, at page 42, line 1-2.

The Office action of January 2, 2003, asserts that the response filed on December 13, 2002 to the restriction and species election requirements required in the Office action dated November 13, 2002, although a *bona fide* reply, was not fully responsive. In particular, the Office action of January 2, 2003, asserts that Applicant failed to respond fully to the requirement for election of a disclosed species.

Applicant again elects Group I (now claims 1-2, 4-8, 10-14, 17-18, 20-36, 47-53, 69-87 and 89-113) directed to a method for analyzing a gas sample as made in the response of December 13, 2002. Again, although claim 87 was not addressed in the Office action, it should be included in Group I because claim 87 depends from claims 1 and 13, which are already included in Group I. Applicant reserves the right to prosecute claims of the non-elected groups in a divisional application.

Applicant elects the species of VOCs; continuous measurement; on plural parallel columns (rather than "plural parallel chromatographs," which appears to be a typographical error in the Office action); using helium as the carrier-pneumatic focusing gas; increasing the pressure

of the carrier-pneumatic focusing gas; simultaneously with sample injection; using a carrier gas rather than a compressor; using one carrier gas; using a non-supercritical carrier gas; without gradient elution (which cannot be performed with a single carrier gas); using an FID detector; in automated operation; preparing the sample by filtering; not a cryogenically liquefied sample; and making eddy correlation measurements to quantify fluxes. Applicant reserves the right to prosecute claims to additional species, in this application, upon allowance of a generic claim.

Applicant believes that the following claims read on the species elected above: claims 1-2, 8-14, 18, 21-23, 28-36, 47-50, 52, 69-74, 76-84, 87, 89-92, 94, 96-101, and 103-113. Claim 1 is generic to all the other claims of Group I because most all of the other claims depend from claim 1, or in the case of claims 105-111, they fall within the scope of claim 1. Some of the claims listed in this paragraph, while believed to read on certain embodiments of the elected species, include limitations that further characterize the claimed inventions.

Conclusion

Favorable consideration of the foregoing amendments and allowance of the application are requested.

Respectfully submitted,

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Marked-up Version of Amended Claims
Pursuant to 37 C.F.R. §§ 1.121(b)-(c)

1. (Reiterated) A method for analyzing a gas sample, comprising:

providing a gas sample or converting a sample to a gas sample;

increasing pressure applied to the gas sample to compress the sample to a smaller volume and provide a pneumatically focused gas sample; and

analyzing the pneumatically focused gas sample by gas chromatography.

2. (Reiterated) The method according to claim 1 where the gas sample is pneumatically focused concurrently with or prior to reaching, a separatory column.

4. (Reiterated) The method according to claim 1 where the gas sample is an air sample.

5. (Reiterated) The method according to claim 1 where the gas sample is a breath sample.

6. (Reiterated) The method according to claim 1 where providing a gas sample comprises continuously providing an air sample for pollution analysis.

7. (Reiterated) The method according to claim 1 where providing a gas sample comprises continuously providing a breath sample for analysis.

8. (Reiterated) The method according to claim 1 where increasing the pressure to pneumatically focus the gas sample comprises increasing the pressure of the sample to a pressure of from about 100 psi to about 15,000 psi.

10. (Reiterated) The method according to claim 1 where increasing the pressure to pneumatically focus the gas sample comprises increasing the pressure of the sample to a pressure of from about 200 psi to about 2,000 psi.

11. (Reiterated) The method according to claim 1 where increasing the pressure to pneumatically focus the gas sample comprises increasing the pressure of the sample to a pressure of from about 300 psi to about 700 psi.

12. (Reiterated) The method according to claim 1 where increasing the pressure to pneumatically focus the gas sample is accomplished using a gas selected from the group consisting of hydrogen, helium, nitrogen, argon, carbon dioxide, air, or mixtures thereof.

13. (Reiterated) The method according to claim 1 where increasing the pressure to pneumatically focus the gas sample is accomplished using a focusing or carrier gas containing an internal standard.

14. (Reiterated) The method according to claim 1 where methane in the sample is used as an internal standard.

17. (Reiterated) The method according to claim 1 where analyzing the pneumatically focused sample comprises reducing the pressure of the carrier-pneumatic focusing gas simultaneously with or subsequent to a pneumatically focused sample being injected onto a separatory column.

18. (Reiterated) The method according to claim 1 where the gas sample is pneumatically focused using a carrier gas or a compressor at a first pressure and further comprising rapidly decreasing or increasing pressure between a first and second pressure.

20. (Reiterated) The method according to claim 17 where the pressure is reduced to 100 psi or less.

21. (Reiterated) The method according to claim 1 where analyzing the pneumatically focused sample comprises cooling a head portion of the column prior to injecting the pneumatically focused sample onto the column.

22. (Reiterated) The method according to claim 1 where analyzing the pneumatically focused sample comprises heating the column subsequent to injecting the pneumatically focused sample onto the column.

23. (Reiterated) The method according to claim 1 where analyzing the pneumatically focused sample includes eluting a pneumatically focused sample with a first carrier gas, and then eluting the column with a second carrier gas.

24. (Reiterated) The method according to claim 1 where analyzing the pneumatically focused sample comprises reducing the focusing pressure to a lower value and then a supercritical fluid is introduced gradually to replace an initial carrier gas used to pneumatically focus the sample.

25. (Reiterated) The method according to claim 23 where either the first or second gas is supercritical.

26. (Reiterated) The method according to claim 23 where compositions of the first and second gases are changed continuously or discontinuously using gradient elution.

27. (Reiterated) The method according to claim 23 where pressures of the first and second gases are changed continuously or discontinuously using gradient elution.

28. (Reiterated) The method according to claim 1 and further comprising continuously analyzing pneumatically focused samples.

29. (Reiterated) The method according to claim 1 and further comprising averaging individual chromatograms of pneumatically focused samples.

30. (Reiterated) The method according to claim 29 where peak locations determined from the average are used to integrate peak areas in individual chromatograms contributing to the average.

31. (Reiterated) The method according to claim 1 where analytes from the pneumatically focused sample are determined by a detector selected from the group consisting of FID, IR, FTIR, NDIR, ECD, TCD, NPD, FPD, UV/Visible detectors and combinations thereof.

32. (Reiterated) The method according to claim 1 where the pneumatically focused sample is parallel or serially injected onto plural parallel or serial separatory columns.

33. (Amended) The method according to claim 32 where the pneumatically focused sample is analyzed by 2-dimensional [2 dimensional]chromatography.

34. (Reiterated) The method according to claim 32 where the pneumatically focused sample is analyzed by comprehensive chromatography.

35. (Reiterated) An automated method according to claim 1.

36. (Reiterated) The method according to claim 35 where the method is computer controlled.

47. (Reiterated) The method according to claim 1 where portions of the pneumatically focused sample are fed to separate columns upstream of separate, plural detectors.

48. (Reiterated) The method according to claim 47 where the detectors are connected in series.

49. (Reiterated) The method according to claim 47 where the plural detectors are connected in parallel.

50. (Reiterated) The method according to claim 1 where the pneumatically focused sample is fed to plural separatory columns.

51. (Reiterated) The method according to claim 50 where the separatory columns are connected in series.

52. (Reiterated) The method according to claim 50 where the separatory columns are connected in parallel.

53. (Reiterated) The method according to claim 50 where analytes are pneumatically focused during transit between or among columns.

69. (Reiterated) The method according to claim 1 where the gas sample is provided as a pre-stored gaseous sample.

70. (Reiterated) The method according to claim 1 where the gas sample includes a material selected from the group of air toxics, VOCs, OVOCs, metabolites, anesthetics, and combinations thereof.

71. (Reiterated) The method according to claim 1 where the gas sample is collected at a boundary of a site for fence-line monitoring of analytes.

72. (Reiterated) The method according to claim 1 where providing the gaseous sample comprises providing the sample to a column within a period of less than one minute.

73. (Reiterated) The method according to claim 72 and providing the sample to a column within a period of less than about 1 second.

74. (Reiterated) The method according to claim 73 and providing the sample to a column within a period of less than about 1 millisecond.

75. (Reiterated) The method according to claim 1 where the gas sample is an exhalation from a respiratory organism.

76. (Reiterated) The method according to claim 1 and further comprising determining the directional distribution of pollution sources.

77. (Reiterated) The method according to claim 1 and further comprising using a Gaussian Plume model to determine source location, emission rate, or both.

78. (Reiterated) The method according to claim 1 and further comprising determining analyte source location by triangulation.

79. (Reiterated) The method according to claim 1 and further comprising removing materials from the gaseous sample prior to pneumatically focusing the sample.

80. (Amended) The method according to claim 79 where materials removed from the sample are selected from the group consisting of water vapor, aerosols, ozone, NO_2 [NO2], and combinations thereof.

81. (Reiterated) The method according to claim 79 where the materials are removed by filtering, absorption, vortexing, and combinations thereof.

82. (Amended) The method according to claim 1 further comprising condensing water vapor in the gaseous sample by pneumatic focusing [Pneumatic Focusing].

83. (Reiterated) The method according to claim 82 where the condensed water vapor is removed prior to analyzing the gaseous sample using an analytical device.

84. (Reiterated) The method according to claim 83 where the condensed water vapor contains water-soluble analytes, and such water-soluble analytes are collected for continuous or discontinuous subsequent analysis.

85. (Amended) The method [system] according to claim 47 [51] including [a computer for] continuously operating the system under the control of a computer.

86. (Reiterated) The method according to claim 1 where the sample is a water sample.

87. (Reiterated) The method according to claim 13 where methane is added to the focusing-carrier gas.

89. (Reiterated) The method according to claim 1 where the pneumatically focused sample is separated into aqueous and gaseous components which are separately analyzed.

90. (Reiterated) The method according to claim 1 where the pneumatically focused sample is subsequently cryogenically liquefied.

91. (Reiterated) The method according to claim 1 wherein pneumatic focusing is used to make eddy correlation measurements to quantify fluxes.

92. (Reiterated) The method according to claim 10 where increasing the pressure to pneumatically focus the gas sample comprises increasing the pressure of the sample to a pressure of from about 300 psi to about 1,500 psi.

93. (Reiterated) The method according to claim 10 where increasing the pressure to pneumatically focus the gas sample comprises increasing the pressure of the sample to a pressure of from about 1,000 psi to about 10,000 psi.

94. (Reiterated) The method according to claim 1 where portions of the pneumatically focused sample are fed to separate columns upstream of a single detector.

95. (Reiterated) The method according to claim 94 where the separate columns are connected in series.

96. (Reiterated) The method according to claim 94 where the separate columns are connected in parallel.